

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE APPLICATION OF:

TAKAYUKI YAMAMOTO, ET AL. ; EXAMINER: UHLIR, N.J.

SERIAL NO. 10/085,081

FILED: MARCH 1, 2002 ; GROUP ART UNIT: 1773

FOR: METAL SHEET WITH
ANTICORROSIVE COATING

SECOND DECLARATION UNDER 37 C.F.R. § 1.132

COMMISSIONER FOR PATENTS
ALEXANDRIA, VA 22313-1450

SIR:

I, Hiroo Shige, a citizen of Japan, hereby declare and state that:

1. I have Master's degree in Engineering, which was conferred upon me in 1993 by the Kyoto Institute of Technology located in Kyoto prefecture, Japan.

2. I have been employed by Kabushiki Kaisha Kobe Seiko Sho since 1993 and I have a total of 10 years of work and research experience in the field of surface processing and corrosion of metal sheet.

3. The following experiments were carried out by me or under my direct supervision and control.

4. Corrosion tests were conducted using the JASO-M609 test, which is described in the specification at pages 7-8.

5. The attached FIG. C compares the corrosion depth of coated samples having the anticorrosive paint coating of the present invention with coated samples having conventional and comparative coatings.

"Conventional" refers to a sample coated with $10\mu\text{m}$ of a conventional zinc rich paint containing 65 mass% zinc powder.

"Sample4-6%" refers to a sample of the present invention with a coating in which 6 mass% aluminum phosphomolybdate is added to the conventional zinc rich paint.

"Sample4-10%" refers to a sample of the present invention with a coating in which 10 mass% aluminum phosphomolybdate is added to the conventional zinc rich paint.

"Zincphosphate" refers to a comparative sample with a coating in which 6 mass% zinc phosphate is added to the conventional zinc rich paint.

"TiO₂-10%" refers to a comparative sample with a coating in which 10 mass% TiO₂ is added to the conventional zinc rich paint.

"GI60" refers to a comparative sample of hot dip galvanized steel sheet containing 60g/m² of zinc plating.

"CR" refers to a comparative sample of uncoated cold rolled steel sheet.

"GA45" refers to a comparative sample of hot dip galvanized steel sheet containing 45g/m² of zinc alloy plating.

6. FIG. C shows that the "Sample4-6%" and "Sample4-10%" samples of the present invention exhibited significantly less corrosion than the conventional and comparative samples. In particular, the coating of the present invention containing both metallic zinc powder and a rust inhibitor that is a salt of a metal which is more base than zinc provides superior corrosion resistance than the "Zincphosphate" coating containing 6 mass% zinc phosphate in the conventional zinc rich paint and the "TiO₂-10%" coating containing 10 mass% TiO₂ in the conventional zinc rich paint.

7. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the

like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of this application or any patent issuing thereon.

8. Further declarant saith not.

Date: December 17, 2003

Hiroo Shige

Hiroo SHIGE

Attachments: Fig. C

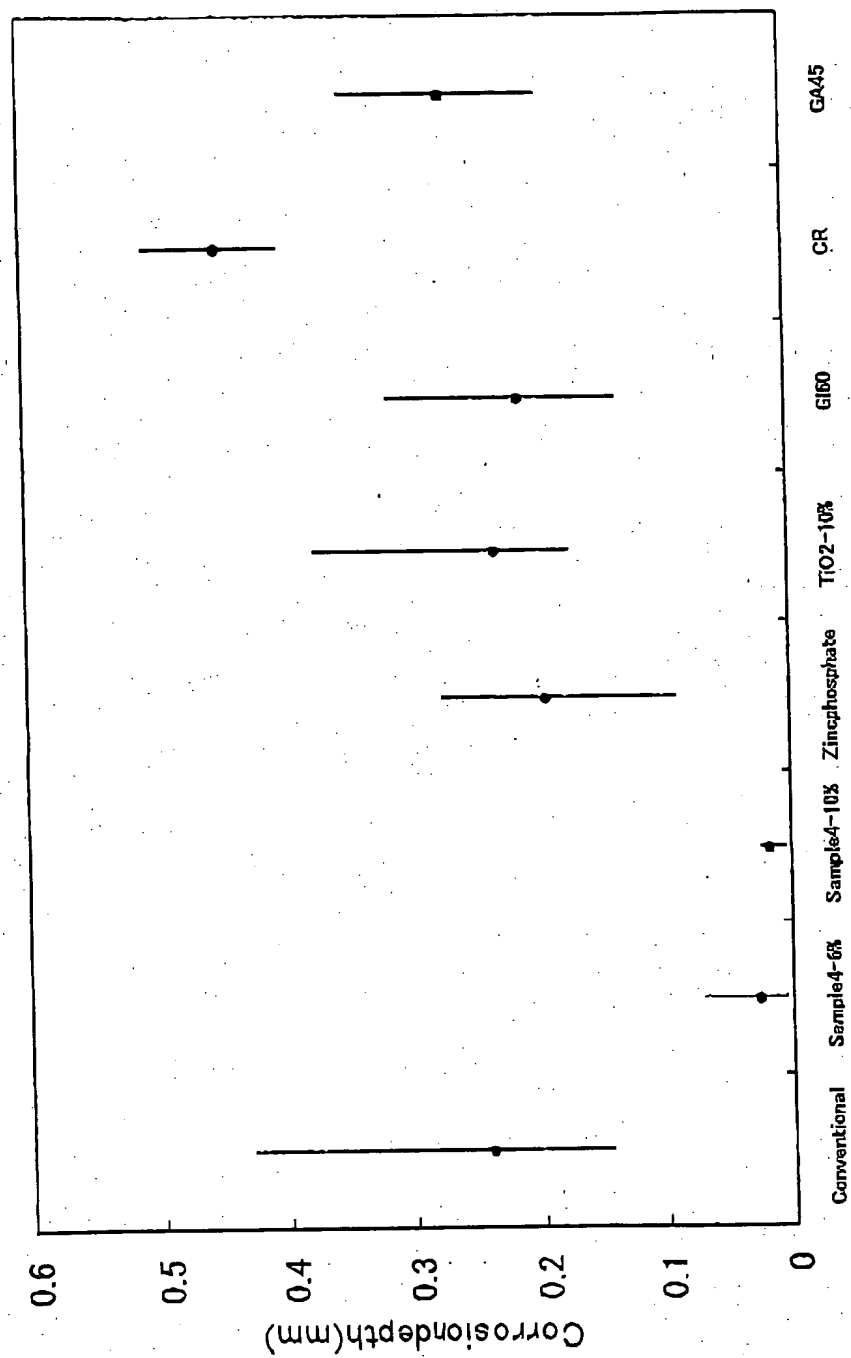


Fig.C Corrosion depth after CCT-JASO 90cycles